

**DOCKET NO. 148379**  
**Serial No. 10/803,620**  
**Response to Final Office Action of January 30, 2006**

**PATENT**

**REMARKS**

Claims 1-30 and 35-38 are in the case. Claims 36-38 are new. Claim 1 is amended to correct an informality. Claim 10 is amended to correct the antecedent basis issues of claim 11. Claim 18 is amended to more clearly recite that the lid is a separate structure than the body.

This Reply is being filed within two months of the mailing date of the Final Rejection dated January 30, 2006. Accordingly, an Advisory Action is requested.

In paragraph 2 of the Final Rejection, claims 1-8, 10, 13-25, 29, 30 and 35 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 4,634,875 ("Kugeler"). For the following reasons, Applicant believes that the rejections of the claims over Kugeler are improper and/or can be overcome with minor amendments to the claims that would not affect the scope of the claims in such a manner that would require further examination. The minor amendments suggested by the Applicant are set forth in new claims 36-38 and claim 18 and are believed to place the application in better condition for allowance if entered by the Examiner.

As a general matter, Applicant notes that the storage system of Kugeler is substantially different than the storage system claimed in the present invention. First, the storage system of the present invention is a passive ventilated cooling system while the Kugeler system uses a closed-circuit forced flow coolant system. *See Kugeler, Col. 5, Lines 12-31, 3-I*. The present invention is free of such equipment.

More importantly, the Kugeler storage system is similar to the warehouse-style storage facilities disclosed in the prior art references of record that have already been distinguished by the Applicant, such as those systems shown in Yamanka and Chaudon. While the storage walls 2 of the Kugeler structure are shaped different than the Yamanka and Chaudon facilities, the Kugeler structure still holds about 450 waste capsules 11 (which are the structural and functional equivalent of the canister in the present invention). *See Kugeler, Col. 3, Lines 47-52 and Figs. 1 and 2*. Thus, as with the Yamanka and Chaudon references, Kugeler does not disclose "a body having a cavity for receiving and storing a spent fuel canister wherein the cavity has a cross-

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section that accommodates no more than one spent fuel canister," as is required by claim 1. To the contrary, the cavity formed by the storage walls 2 of the Kugeler facility hold over 450 canisters/capsules.

The Applicant notes that the cylindrical structure 7 of the Kugeler system is being interpreted to read on the term "canister." This interpretation, however, is improper. While the storage container 7 of the Kugeler system is generally cylindrical in shape, such a structure is not considered a canister as that term is used in the nuclear art. The storage container 7 is an enormous structure, having a diameter of almost 20ft. and a height over 75 ft. As a result, the storage container 7 of Kugeler is not a transportable/transferable structure as are canisters, as that term is used in the art.

Moreover, a review of the Kugeler reference shows that a single waste capsule 11 is the structural and functional equivalent of the "canister" of the present invention, not the storage container 7. Referring to FIG. 2, the waste capsules 11 are transported into the Kugeler storage facility via the transport containers 46. The waste capsules are then removed from the transport containers 46 and placed in the multiple storage shafts 10 of the structure 7. *See Kugeler, Fig. 2 and Col. 7, Lines 31-38.* The waste capsules 11 hermetically seal the nuclear waste by embedding the nuclear waste in borosilicate glass to achieve proper dry storage conditions. As described in the present application, the canisters of the present invention undergo dry storage preparation and are transported in a transfer cask. *See Present Application, ¶¶ [0045] to [0046] and Fig. 5.* Thus, it is clear that the waste capsules 11 read on the term "canister" both structurally and functionally, not the storage container 7. At no time is the storage container 7 of Kugeler removed from the facility walls 2 or the ground, nor could it be due to its enormous size, weight and fluidic connections. Thus, the storage container 7 of the Kugeler system differs from the canister of the present invention in structure, setup and functioning, and should not be interpreted to read on the term "canister."

Claims 36-38 have been added to the case further distinguish the structure of the canister of the present invention from that of the storage container 7 of Kugeler. No new matter has been added. Support for these new claims can be found in the specification in ¶¶ [0030], [0045] and

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[0046] and Fig. 2, along with the common knowledge of those of ordinary skill in the art of nuclear waste dry storage procedures.

Finally, even if the storage container 7 of the Kugeler system is considered to be a canister generally, the storage container 7 is not adapted to house spent nuclear fuel in a dry storage environment. As known to those skilled in the art, once a canister is loaded with spent nuclear fuel, the interior of the canister must be dried to a desired vapor pressure, backfilled with an inert gas and hermetically sealed. While the storage shafts 10 of the storage container 7 of Kugeler are capable of being hermetically sealed with caps 12, the repetitive opening and closing of the storage shafts 10 to insert new waste capsules 11 would allow any inert gas contained within the storage shafts 10 to escape and water vapor to enter. As a result, it is the waste capsules themselves that are adapted for dry storage, not the storage container 7. Thus, the storage container 7 of Kugeler is not a canister adapted for dry storage of spent fuel, as is required by claims 36 and 37.

**Amended Claim 18 is Allowable Over The Prior Art**

Turning now to claim 18, claim 18 depends on amended claim 1 and further requires "a removable lid positioned atop the body and covering the cavity." Applicant notes that the term "removable" was interpreted in the Office Action as "any structure element that is attached to another element can be removed, e.g. by cutting." This was not Applicant's intended meaning. As such, claim 18 is amended to recite that the lid is positioned atop the body "so as to form a lid-to-body interface" and that "the lid and body are a non-unitary structure." Such limitations clearly recite that the lid is a separate structure from that of the body. No new matter is added. Support can be found in Figs. 2-4 of the present application and the corresponding discussion.

Kugeler does not disclose a lid as is required by claim 18. Applicant notes that above-grade overpack storage systems do exist that have removable lids that form a lid-to-body interface and form a non-unitary structure with the body. *See e.g., U.S. Patent 6,718,000, to Singh*. However, such above-grade overpack systems do not teach or suggest the limitations of the system set forth in claim 1 of the present application (as was discussed in Applicant's

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response of August 15, 2005 with respect to the Rogers and Kok references). Thus, it is assumed that any rejection of amended claim 18 would be under 35 U.S.C. § 103 over Kugeler in view of a reference, such as U.S. Patent 6,718,000. Such a rejection, however, would be improper. Because of the nature and style of the Kugeler facility, one skilled in the art would not be motivated to make the roof/top portion of the Kugeler facility to be a removable non-unitary structure that forms a lid-to-body interface with the storage walls 2. The reason why the lid of claim 18 is a removable non-unitary structure with the body is because of the canister loading procedure it is designed to accommodate. As described in the specification, a canister is loaded into the body of the present invention by positioning a transfer cask containing the canister directly above the below-grade body. The lid is removed from the below grade body to provide access to the cavity and the canister is then lowered from the transfer cask into the cavity of the below-grade body. The lid is then placed atop the body and is non-fixedly secured to the body. The non-unitary nature of the lid and body of the present invention is necessary to allow the canister to be easily removed from the cavity in the future using a similar procedure. *See Present Application, §§ [0045]-[0046] and Fig. 5.*

The nuclear waste transfer procedure of the Kugeler facility, however, operates in a very different manner than that of the present invention. As discussed above, the Kugler facility is a warehouse-style storage facility storing hundreds of waste capsules 11. The waste capsules 11 are loaded into the storage container 7 of Kugeler by bringing transport containers 46 containing the waste capsules 11 into a loading dock area 44 that is below the roof portion of the facility. *See Kugeler, Fig. 2 and Col. 7, Lines 31-38.* The waste capsules 11 are then removed from the transport containers 46 and placed in the storage shafts 10 of the storage container 7 with an overhead crane installation. Because this entire transfer procedure is performed within the Kugeler facility, there is absolutely no reason why one would modify the roof/top portion of the facility to be a removable and non-unitary structure with the storage walls 2. In fact, doing so would be undesirable because it would compromise the structural integrity and radiation absorbing characteristics of the Kugeler facility. This would be especially problematic in the Kugeler facility where the waste capsules 11 are removed from the storage containers 46 and exposed to the internal environment of the facility during the crane transfer procedure.

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The only reason one would ever modify the roof/top portion of the Kugeler facility to be removable and a non-unitary structure with the storage walls 2 is if the entire storage container 7 was to be repetitively removed from and/or inserted into the storage walls 2. However, as discussed above, the storage container 7 of the Kugler facility is an enormous structure having a diameter of almost 20ft. and a height over 75 ft. There is absolutely no mention or suggestion in Kugeler that it is desirable to remove this structure 7 from the body 2. In fact, doing so would destroy the fluidic connections of the closed-circuit coolant system along with other aspects of the Kugeler system.

Thus, for these reasons it is believed that amended claim 18 is clearly patentable over Kugeler. The current amendment to claim 18 is of a minor character and does not significantly affect claim scope. The amendment merely clarifies the Applicant's original intended structure and claim scope. As a result, and for the reasons set forth above, entering this amendment would not require further search by the Examiner and would clearly put the claim in condition for allowance over Kugeler and all other prior art of record. Accordingly, it is respectfully requested that the amendment to claim 18 be entered and the claim allowed.

It is believed that all grounds of rejection and objection have been traversed or obviated, and that the rejections and objection should be withdrawn, and the application allowed.

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